Military Infectious Diseases Research Program

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MIDRP MISSION

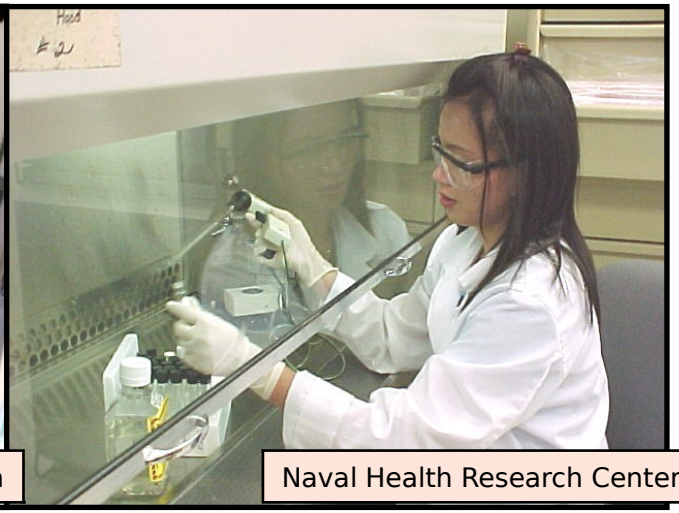
To conduct for the Department of Defense, a focused and responsive world class infectious diseases research and development program leading to **fielding of effective, improved means of protection and treatment** to maintain maximal global operational capability with minimal morbidity and mortality

Military Infectious Diseases Research Programs (all of DoD)

- **Military Infectious Diseases Research Program** (MIDRP; **$60M** in FY04)
- U.S. Army Medical Materiel Development Activity (USAMMDA; $10M)
- Congressionally Mandated Programs ($30M to MIDRP efforts)
- SBIR/STTR ($3M)
- Outside funding (NIH, NGOs, Industry)
- Other DoD funded programs that leverage the MIDRP
  - Global Emerging Infections Surveillance and Response System (GEIS; $9M)
  - DoD HIV/AIDS Prevention Program (Life; $10M)
  - Biological Weapons Defense Program (DTRA; $99M)
  - Defense Advanced Research Projects Agency (DARPA; $2.7B; $133M for BW)


Kisumu Field Site, Kenya


Walter Reed Army Institute of Research


Naval Health Research Center

MIDRP Places

MIDRP Website

USAMRIID, Fort Detrick

NAMRU-3, Cairo

WRAIR/NMRC, Silver Spring

AFRIMS, Bangkok

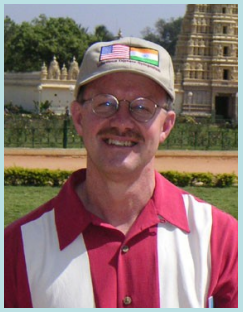
NMRC-D, Lima

USAMRU-K, Nairobi

NAMRU-2, Jakarta

MIDRP Research Coordinators

Malaria Drug	Malaria Vaccine	Malaria Genome	Diarrheal Diseases	Flavivirus	Diagnostics
 Q	 F	 C	 D	 S	 L
Dr. Milhous	COL Heppner	Dr. Doolan	CAPT Savarino	COL Sun	LTC Coleman

Insect Vector	Rickettsial	Lethal Viruses	Meningococcal	Leishmaniasis	HIV Research
 U	 J	 T	 M	 P	 H
COL Gordon	Dr. Richards	Dr. Schmaljohn	Dr. Zollinger	COL Magill	COL Birx

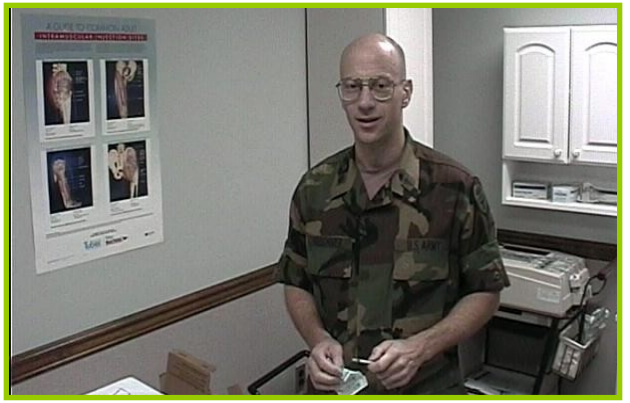
- Coordinating the work of approximately 330 Army, Navy, Air Force, DoD civilian and contract scientists located in 8 infectious diseases research laboratories
- Approximately 800 support personnel

Other Assets

Accredited Lab Animal Facilities

Pilot Vaccine Production Facility

Biosafety Level 4 Containment



Clinical Trials Units

Military Infectious Diseases Research Program
Licensed Products

Licensed Vaccines

- **Influenza** (1942)
- **Adenovirus 4 & 7** (1980)
- **Meningococcus** (A, C, Y, W-135)
- **Oral Live Typhoid Ty21A** (1990)
- **Japanese Encephalitis** (1992)
- **Hepatitis A** (1995)

Licensed Drugs

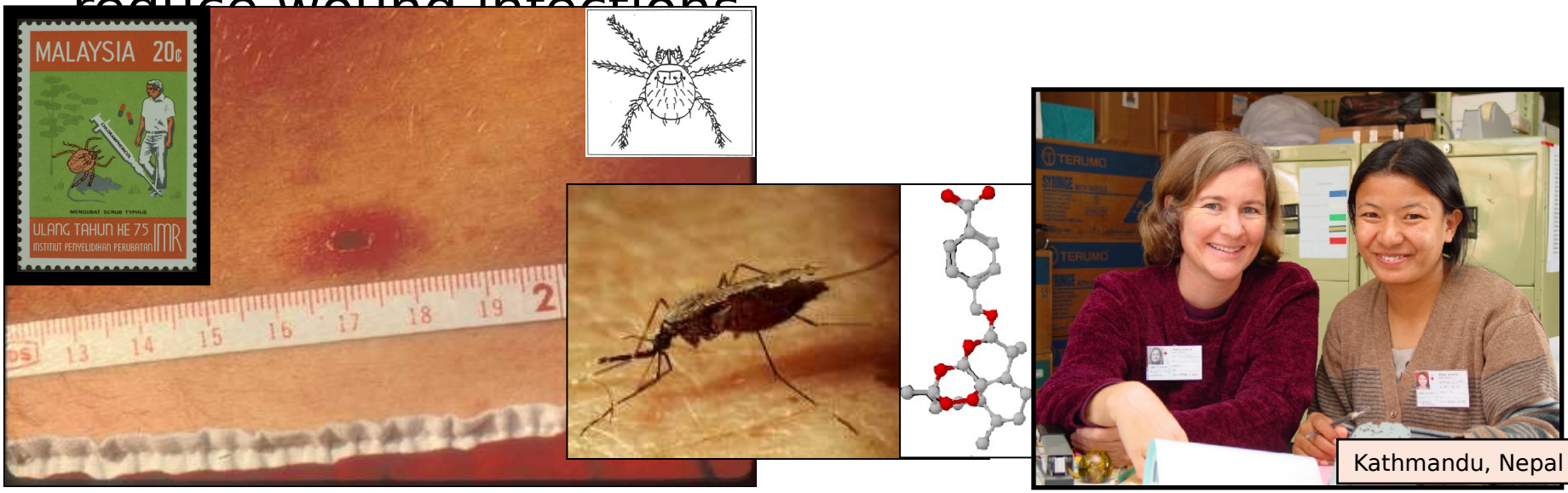
- **Primaquine**
- **Chloroquine-Primaquine Tablets**
- **Sulfadoxine-Pyrimethamine (Fansidar®)**
- **Mefloquine (Lariam ®)**
- **Halofantrine (Halfan®)**
- **Doxycycline (Vibramycin®)**
- **Atovaquone/Proguanil (Malarone®)**

Diagnostics And Protectants

- **Scrub typhus diagnostic**
- **DEET-based Standard Insect Repellent**

What MIDRP is Doing About Antimicrobial Resistance

- Limited collection and characterization of resistant strains of malaria and diarrhea pathogens largely supported by the GEIS program
- Vigorous program to bring new antimalarial drugs and vaccines to market in partnership with non-governmental organization (NGOs) and industry
- Combat Casualty Care Research is working on antimicrobial peptides and other topical options to reduce wound infections



Issues Related to Antimicrobial Development

- The primary goal of MIDRP research is to prevent rather than to treat disease. Diagnosis and treatment are important secondary goals.
- DoD is not making new antimicrobials for bacterial pathogens, and pharmaceutical companies have slowed development.
- DoD has in place the people, infrastructure, and successful track record for antimicrobial drug development (the malaria drug program).
- How does the problem of microbial resistance to antibiotics compare to the problems of malaria, dengue, diarrhea, the need for improved diagnostics, etc?
- The MIDRP is modestly resourced ($40M) with a broad research portfolio (11 program areas).
- Drug development costs are large.

What Might MIDRP Offer?

- Continue to partner with GEIS to document developing resistance within current research areas such as malaria, diarrhea, and scrub typhus.
- Possible new efforts:
  - Explore mechanisms of resistance to include bacterial physiology, functional genomics and proteomics
  - Develop resistance-specific bacterial diagnostics
  - Develop vaccines for common wound pathogens
  - Coordinate prospective prophylactic treatment studies in Iraq or in other trauma settings (complicated due to multiple variables and location in a war zone)
  - Develop new antimicrobials (drugs or other treatment approaches)
  - Develop immunomodulatory approaches to disease prevention
- All new efforts require new funding, additional personnel and extensive partnerships between DoD and other federal agencies, universities, and industry.

Conclusions

- The MIDRP contributes to the defense of the United States and to the needs of people living in disease endemic areas and travelers to those areas
  - Drugs, vaccines, diagnostics
  - Better understanding of tropical diseases
  - Science infrastructure improvements in developing countries
- Antimicrobial resistance presents new challenges


Jakarta, Indonesia


Cobra Gold Exercise in Thailand


Kisumu, Kenya